



Atty Dkt 2225-0003
PATENT

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7/13/01
Date

[Signature]
Signature

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In Re Application of:

CHOE and FELDMANN

Confirmation No.: 3956

Serial No.: 09/775,879

Group Art Unit: n/a

Filing Date: February 2, 2001

Examiner: n/a

Title: DWF7 MUTANTS

**STATEMENT TO SUPPORT FILING AND SUBMISSION IN ACCORDANCE
WITH 37 C.F.R. §§ 1.821-1.825**

Assistant Commissioner for Patents
Washington, D.C. 20231

Sir:

The undersigned hereby states that the content of the attached papers and the computer-readable copy of the Sequence Listing, submitted in accordance with 37 C.F.R. §§ 1.821(c) and (e), respectively, are the same.

Respectfully submitted,

Date: 7/13/01

By: [Signature]
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SEQUENCE LISTING

<110> Choe, Sunghwa
Feldmann, Kenneth A

<120> Dwf7 MUTANTS

<130> 2225-0003

<140> 09/775,879

<141> 2001-02-02

<150> 60/179,901

<151> 2000-02-02

<160> 25

<170> PatentIn Ver. 2.0

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 <212> PRT
 <213> delta-7 sterol C-5 desaturase (Candida glabrata)

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 35 40 45
 Leu His Glu Thr Leu Ser Ile Thr Asn Ser Leu Lys Arg Val Asn Lys
 50 55 60
 Asp Val Tyr Gly Leu Thr Pro Phe Leu Phe Asp Phe Thr Glu Lys Thr
 65 70 75 80
 Tyr Ala Ser Leu Leu Pro Arg Asn Asn Leu Ile Arg Glu Phe Phe Ser
 85 90 95
 Leu Trp Ala Val Val Thr Val Phe Gly Leu Leu Leu Tyr Leu Ile Thr
 100 105 110
 Ala Ser Leu Ser Tyr Val Phe Val Phe Asp Arg Thr Ile Phe Asn His
 115 120 125
 Pro Lys Tyr Leu Lys Asn Gln Met Tyr Leu Glu Ile Lys Leu Ala Val
 130 135 140
 Ser Ala Ile Pro Thr Met Ser Leu Leu Thr Val Pro Trp Phe Met Leu
 145 150 155 160
 Glu Leu Asn Gly Tyr Ser Lys Leu Tyr Tyr Asp Val Asp Trp Glu His
 165 170 175
 His Gly Leu Arg Lys Leu Leu Ile Glu Tyr Ala Thr Phe Ile Phe Phe
 180 185 190
 Thr Asp Cys Gly Ile Tyr Leu Ala His Arg Trp Leu His Trp Pro Arg

Ala	Ser	Leu	Leu	Pro	Arg	Ser	Ser	Ile	Leu	Arg	Glu	Phe	Leu	Ser	Leu		
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Trp	Val	Ile	Val	Thr	Ile	Phe	Gly	Leu	Leu	Leu	Tyr	Leu	Phe	Thr	Ala		
				100						105						110	
Ser	Leu	Ser	Tyr	Val	Phe	Val	Phe	Asp	Lys	Ser	Ile	Phe	Asn	His	Pro		
				115						120						125	
Arg	Tyr	Leu	Lys	Asn	Gln	Met	Ala	Met	Glu	Ile	Lys	Leu	Ala	Val	Ser		
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Ala	Ile	Pro	Trp	Met	Ser	Met	Leu	Thr	Val	Pro	Trp	Phe	Val	Met	Glu		
				145						155						160	
Leu	Asn	Gly	His	Ser	Lys	Leu	Tyr	Met	Lys	Ile	Asp	Tyr	Glu	Asn	His		
				165						170						175	
Gly	Val	Arg	Lys	Leu	Ile	Ile	Glu	Tyr	Phe	Thr	Phe	Ile	Phe	Phe	Thr		
				180						185						190	
Asp	Cys	Gly	Val	Tyr	Leu	Ala	His	Arg	Trp	Leu	His	Trp	Pro	Arg	Val		
				195						200						205	
Tyr	Arg	Ala	Leu	His	Lys	Pro	His	His	Lys	Trp	Leu	Val	Cys	Thr	Pro		
				210						215						220	
Phe	Ala	Ser	His	Ser	Phe	His	Pro	Val	Asp	Gly	Phe	Leu	Gln	Ser	Ile		
				225						235						240	
Ser	Tyr	His	Ile	Tyr	Pro	Leu	Ile	Leu	Pro	Leu	His	Lys	Val	Ser	Tyr		
				245						250						255	
Leu	Ile	Leu	Phe	Thr	Phe	Val	Asn	Phe	Trp	Thr	Val	Met	Ile	His	Asp		
				260						265						270	
Gly	Gln	Tyr	Leu	Ser	Asn	Asn	Pro	Ala	Val	Asn	Gly	Thr	Ala	Cys	His		
				275						280						285	
Thr	Val	His	His	Leu	Tyr	Phe	Asn	Tyr	Asn	Tyr	Gly	Gln	Phe	Thr	Thr		
				290						295						300	
Leu	Trp	Asp	Arg	Leu	Gly	Gly	Ser	Tyr	Arg	Arg	Pro	Asp	Asp	Ser	Leu		
				305						310						315	
Phe	Asp	Pro	Lys	Leu	Arg	Asp	Ala	Lys	Glu	Thr	Trp	Asp	Ala	Gln	Val		
				325						330						335	
Lys	Glu	Val	Glu	His	Phe	Ile	Lys	Glu	Val	Glu	Gly	Asp	Asp	Asn	Asp		
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 <212> PRT
 <213> delta-7 sterol C-5 desaturase (Schizosaccharomyces pombe)

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Thr	Ala	Val	Asn	Ser	Thr	Thr	Leu	Gly	Leu	Ala	Glu	Lys	Val	Asn	Phe
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Ala	Ile	Thr	Ser	Gly	Leu	Leu	Asp	Arg	Asn	Asn	Val	Trp	Arg	Gln	Phe
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Thr	Ser	Leu	Phe	Leu	Ile	Thr	Trp	Ile	Met	Gly	Thr	Leu	Ser	Tyr	Phe
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Leu	Ser	Ala	Ser	Phe	Ala	Tyr	Tyr	Val	Tyr	Phe	Asp	Arg	Glu	Glu	Ala
				85					90					95	
Arg	Arg	His	Pro	Lys	Phe	Leu	Lys	Asn	Gln	Glu	His	Leu	Glu	Leu	Met
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Val	Ala	Leu	Lys	Asn	Leu	Pro	Gly	Met	Ala	Ile	Leu	Thr	Ala	Pro	Trp
		115					120					125			
Phe	Leu	Ala	Glu	Ile	Arg	Gly	Tyr	Gly	Tyr	Val	Tyr	Asp	Lys	Leu	Asp
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Glu	Tyr	Gly	Tyr	Phe	Tyr	Leu	Phe	Phe	Ser	Ile	Ala	Leu	Phe	Leu	Leu
	145				150					155					160
Phe	Ser	Asp	Phe	Leu	Ile	Tyr	Trp	Ile	His	Arg	Ala	Leu	His	His	Arg
			165					170						175	
Trp	Leu	Tyr	Ala	Pro	Leu	His	Lys	Leu	His	His	Lys	Trp	Ile	Val	Pro
			180					185					190		
Thr	Pro	Tyr	Ser	Ser	His	Ala	Phe	His	Tyr	Leu	Asp	Gly	Tyr	Ser	Gln
		195				200						205			
Ser	Leu	Pro	Tyr	His	Met	Phe	Pro	Phe	Phe	Phe	Pro	Leu	Asn	Lys	Tyr
	210					215					220				
Val	Tyr	Leu	Leu	Leu	Phe	Gly	Ser	Val	Asn	Tyr	Trp	Thr	Val	Leu	Ile
	225				230					235					240
His	Asp	Gly	Lys	Tyr	Phe	Ser	Asn	Asn	Ala	Val	Val	Asn	Gly	Ala	Ala
			245						250					255	

His His Ala Ala His His Met Tyr Phe Asn Tyr Asn Tyr Gly Gln Phe
260 265 270

Phe Thr Leu Phe Asp Arg Leu Cys Ser Ser Tyr Arg Gln Pro Asp Gln
275 280 285

Glu Leu Phe Asp Ala Glu Leu Arg Asn Glu Lys Leu Gln Glu Gln Arg
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Ile Arg Phe Met Glu Thr Val Gln Tyr Thr Val Glu Gly Lys Asp Asp
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Arg Thr Tyr Ala Ser Lys Lys Asp Asn
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Glu Pro Leu Pro His Phe Leu Gln Thr Trp Leu Arg Asn Tyr Leu Ala
35 40 45

Gly Thr Leu Leu Tyr Phe Ile Ser Gly Phe Leu Trp Cys Phe Tyr Ile
50 55 60

Tyr Tyr Leu Lys Ile Asn Val Tyr Leu Pro Lys Asp Ala Ile Pro Thr
65 70 75 80

Ile Lys Ala Met Arg Leu Gln Met Phe Val Ala Met Lys Ala Met Pro
85 90 95

Trp Tyr Thr Leu Leu Pro Thr Val Ser Glu Ser Met Ile Glu Arg Gly
100 105 110

Trp Thr Lys Cys Phe Ala Ser Ile Asp Glu Phe Gly Trp Ile Leu Tyr
115 120 125

Phe Val Tyr Ile Ala Ile Tyr Leu Val Phe Val Glu Phe Gly Ile Tyr
130 135 140

Trp Met His Arg Glu Leu His Asp Ile Lys Pro Leu Tyr Lys Tyr Leu
145 150 155 160

His Ala Thr His His Ile Tyr Asn Lys Gln Asn Thr Leu Ser Pro Phe
165 170 175

Ala Gly Leu Ala Phe His Pro Val Asp Gly Ile Leu Gln Ala Val Pro
 180 185 190

His Val Ile Ala Leu Phe Ile Val Pro Ile His Phe Thr Thr His Ile
 195 200 205

Gly Leu Leu Phe Met Glu Ala Ile Trp Thr Ala Asn Ile His Asp Cys
 210 215 220

Ile His Gly Asn Ile Trp Pro Val Met Gly Ala Gly Tyr His Thr Ile
 225 230 235 240

His His Thr Thr Tyr Lys His Asn Tyr Gly His Tyr Thr Ile Trp Met
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Asp Trp Met Phe Gly Ser Leu Arg Asp Pro Leu Leu Glu Glu Asp Asp
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Asn Lys Asp Ser Phe Lys Lys Ala Glu
 275 280

<210> 19

<211> 291

<212> PRT

<213> delta-7 sterol C-5 desaturase concensus

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Leu Glu Thr Leu Asn Lys Val Asn Tyr Gly Pro Phe Leu Phe Asp Phe
 35 40 45

Thr Glu Thr Ser Phe Ser Leu Leu Pro Arg Asn Asn Leu Trp Arg Glu
 50 55 60

Phe Leu Ser Leu Trp Leu Ile Val Thr Ile Phe Gly Leu Leu Tyr Ile
 65 70 75 80

Ala Ser Leu Ser Tyr Phe Phe Asp Ile Phe Asn His Pro Lys Tyr Leu
 85 90 95

Lys Asn Gln Met Leu Glu Ile Lys Ala Val Ala Ile Pro Trp Met Ser
 100 105 110

Leu Leu Thr Val Pro Trp Phe Met Glu Leu Gly Tyr Ser Lys Leu Tyr
 115 120 125

Lys Ile Asp Glu His Gly Arg Lys Leu Phe Ile Glu Ala Thr Phe Phe
 130 135 140

Phe Thr Asp Gly Ile Tyr Ala His Arg Trp Leu His Trp Pro Tyr Lys
 145 150 155 160
 Ala Leu His Lys Pro His His Lys Trp Leu Val Cys Thr Pro Phe Ala
 165 170 175
 Ser His Ala Phe His Pro Val Asp Gly Tyr Leu Gln Ser Leu Tyr His
 180 185 190
 Ile Tyr Pro Leu Leu Pro Leu His Lys Ser Tyr Leu Leu Phe Thr Phe
 195 200 205
 Val Asn Phe Trp Thr Val Met Ile His Asp Gly Gln Ser Asn Asn Pro
 210 215 220
 Val Val Asn Gly Ala Cys His Thr Val His His Leu Tyr Phe Asn Tyr
 225 230 235 240
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 245 250 255
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 Lys Lys Asn
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 <213> Genomic dwf7 (Arabidopsis)

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 Glu Pro Leu Pro His Phe Leu Gln Thr Trp Leu Arg Asn Tyr Leu Ala
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 Gly Thr Leu Leu Tyr Phe Ile Ser Gly Phe Leu Trp Cys Phe Tyr Ile
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 Tyr Tyr Leu Lys Ile Asn Val Tyr Leu Pro Lys Asp Ala Ile Pro Thr
 65 70 75 80
 Ile Lys Ala Met Arg Leu Gln Met Phe Val Ala Met Lys Ala Met Pro
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 Trp Tyr Thr Leu Leu Pro Thr Val Ser Glu Ser Met Ile Glu Arg Gly
 100 105 110
 Trp Thr Lys Cys Phe Ala Ser Ile Asp Glu Phe Gly Trp Ile Leu Tyr
 115 120 125
 Phe Val Tyr Ile Ala Ile Tyr Leu Val Phe Val Glu Phe Gly Ile Tyr
 130 135 140
 Trp Met His Arg Glu Leu His Asp Ile Lys Pro Leu Tyr Lys Tyr Leu
 145 150 155 160
 His Ala Thr His His Ile Tyr Asn Lys Gln Asn Thr Leu Ser Pro Phe
 165 170 175

Ala Gly Leu Ala Phe His Pro Val Asp Gly Ile Leu Gln Ala Val Pro
 180 185 190

His Val Ile Ala Leu Phe Ile Val Pro Ile His Phe Thr Thr His Ile
 195 200 205

Gly Leu Leu Phe Met Glu Ala Ile Trp Thr Ala Asn Ile His Asp Cys
 210 215 220

Ile His Gly Asn Ile Trp Pro Val Met Gly Ala Gly Tyr His Thr Ile
 225 230 235 240

His His Thr Thr Tyr Lys His Asn Tyr Gly His Tyr Thr Ile Trp Met
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Asn Lys Asp Ser Phe Lys Lys Ala Glu
 275 280

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Pro	Trp	Tyr	Thr	Leu	Leu	Pro	Ala	Val	Ser	Glu	Tyr	Met	Ile	Glu	His
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Glu Pro Leu Pro His Phe Leu Gln Thr Trp Leu Arg Asn Tyr Leu Ala
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Gly Thr Leu Leu Tyr Phe Ile Ser Gly Phe Leu Trp Cys Phe Tyr Ile
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Tyr Tyr Leu Lys Ile Asn Val Tyr Leu Pro Lys Asp Ala Ile Pro Thr
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Ile Lys Ala Met Arg Leu Gln Met Phe Val Ala Met Lys Ala Met Pro
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Trp Tyr Thr Leu Leu Pro Thr Val Ser Glu Ser Met Ile Glu Arg Gly
100 105 110

Trp Thr Lys Cys Phe Ala Ser Ile Asp Glu Phe Gly Trp Ile Leu Tyr
115 120 125

Phe Val Tyr Ile Ala Ile Tyr Leu Val Phe Val Glu Phe Gly Ile Tyr
130 135 140

Trp Met His Arg Glu Leu His Asp Ile Lys Pro Leu Tyr Lys Tyr Leu
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His Ala Thr His His Ile Tyr Asn Lys Gln Asn Thr Leu Ser Pro Phe
165 170 175

Ala Gly Leu Ala Phe His Pro Val Asp Gly Ile Leu Gln Ala Val Pro
180 185 190

His Val Ile Ala Leu Phe Ile Val Pro Ile His Phe Thr Thr His Ile
195 200 205

Gly Leu Leu Phe Met Glu Ala Ile Trp Thr Ala Asn Ile His Asp Cys
210 215 220

Ile His Gly Asn Ile Trp
225 230